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**MEETING NOTES**

**TO:** Distribution

**DATE:** December 15, 1993

**FROM:** Philip Nixon

**MEMO #:** SP307:121593:01

**PROJECT #:** Solar Pond IM/IRA

**ATTENDANCE:**

Harlan Ainscough, CDH  
Mark Austin, EG&G  
Phil Nixon, ES  
Richard Henry, ES  
Andy Ledford, EG&G  
Alan MacGregor, ERM  
John Haasbeek, ERM  
Frazer Lockhart, DOE/SMS  
Dave Ericson, EG&G  
Steve Howard, ERM  
Rick Wilkinson, ES  
Dave Myers, ES  
Peg Witherill, DOE  
Arturo Duran, EPA

**DISTRIBUTION:**

Attendees  
L. Benson  
A. Conklin  
P. Breen  
H. Heidkamp  
K. Cutter  
S. Stenseng  
A. Fricke  
R. Stegen  
T. Kuykendall  
T. Evans  
B. Cropper  
C. Montes  
B. Wallace, EG&G (Admin.  
Record) (2)  
K. Ruger, EG&G  
K. London, EG&G  
Martin McBride  
Helen Belencan, DOE  
Steve Cook  
Joe Schieffelin, CDH  
Steve Paris, EG&G  
Ted Kearns, DOE/KMI  
Bob Segris, LATO  
Randy Ogg, EG&G  
Steve Keith, EG&G

**SUBJECT:** Weekly Status Meeting



DOCUMENT CLASSIFICATION  
REVIEW WAIVER PER  
CLASSIFICATION OFFICE 1

R9-10-17.WPF

ADMIN RECORD

A-DU04-000656

## **1.) Introductions**

Andy Ledford introduced Dave Ericson as the EG&G design and construction manager for the OU4 IM/IRA. He also introduced Erika Atchison as the OU4 Program Administrator.

The purpose of the meeting was to determine a path forward for the conceptual design of a selected remedial/closure alternative. The discussions focused on the different media (contaminated media, liners, and hotspots). It was noted that regulatory approval was not expected at this time, but an agreement on a path forward was needed that would be approved if DOE demonstrated that it would be implemented in a manner which would be protective of human health and the environment.

## **2.) Contaminated Media**

Contaminated media is defined as soils outside the area under the proposed engineered cover that have concentrations which exceed the Preliminary Remediation Goals (PRGs). Hot spots are defined as materials under the area of the proposed engineered cover that have concentrations exceeding the PRGs and present an unacceptable risk to human health and the environment as demonstrated through vadose zone transport modeling to groundwater.

Phil Nixon presented the areal extent of the contaminated media on the north hillside and presented an estimated volume of material that exceed the PRGs and Land Disposal Restriction concentrations.

It was agreed that soils exceeding PRGs could be consolidated under the engineered cover without enacting a Corrective Actions Management Unit (CAMU) concept. However, soils exceeding their LDR levels could not be consolidated under the engineered cover. There is approximately 3,000 cubic yards of soil that exceed the LDR concentrations. It was discussed that additional testing of archived RFI/RI samples for TCLP concentrations might demonstrate compliance with the LDR concentrations. The RFI/RI results are based on a total metals analysis. A reduction in the OU4 concentration would be dependent upon the actual dilution factor being greater than the regulatory default value of 20. EG&G will pursue TCLP analysis or sensitivity analysis to determine if the north hillside soil concentrations are less than the LDR concentrations.

Harlan Ainscough indicated that the Colorado Hazardous Waste Control Commission is considering adopting the CAMU rule. He specified that its acceptance was likely and recommended that DOE prepare the IM/IRA assuming that it would be adopted.

It was agreed that DOE would prepare the IM/IRA specifying that radiologically-contaminated hillside soils and soils that do not have an LDR concern may be consolidated under the covered area. It is likely that contaminated soils from the berms to the seep areas will be consolidated, but that soils north of the seep areas that are impacted by groundwater will be addressed by the Phase II program. It will be assumed

that the CAMU concept will be adopted by CDH. DOE will develop a contingency plan if the CAMU concept is not adopted. The contingency plan may consist of:

- 1) additional TCLP analysis to demonstrate compliance with LDR concentrations
- 2) excavate and dispose of soils exceeding LDR concentrations
- 3) extend the engineered cover over the areas where LDR concentrations are exceeded.

The IM/IRA document will have to justify the use of the CAMU concept.

### 3) Liners

Frazer Lockhart agreed that DOE would excavate portions of the liners and subgrade if it was determined that this was necessary to be protective of human health and the environment. Leaving the liners in-place would provide a protective barrier against liquids migrating to the subgrade materials and would provide a stable base for construction of an engineered cover. Harlan Ainscough specified that the liners could remain in place if DOE could demonstrate that the impacts to groundwater from horizontal and vertical migration were insignificant and protective of human health and the environment for 1000 years. Harlan indicated that CDH believes the geology/hydrogeology of the site are not adequate to meet the 1000 years siting criteria. However, engineering remedies/ upgrades may be acceptable for preventing adverse impacts for the 1000 year period. The siting requirements will be identified as location-specific ARARs.

It was agreed that the liners could remain in place if it could be demonstrated that the entire remedial alternative would be protective of human health and the environment and prevent groundwater contact with the liners and contaminated media for 1000 years. Protection of groundwater must consider both vertical and lateral migration. It was agreed that this does not mean that the engineered barrier must be designed for a passive life span of 1000 years.

DOE will provide vadose zone modeling results to demonstrate the protection of human health and the environment. Performance modeling will also be used to determine the requirements of the engineered barrier.

Harlan specified that the engineered cover would only have to be designed for a 30-year life span if the liners were removed. Frazer Lockhart indicated that DOE might have a difficult time selling a 30-year design to the public.

It was agreed that an engineered cover could be selected as the OU4 IM/IRA if the above-mentioned requirements were adequately addressed.

Arturo Duran stated that it would be possible to remove and consolidate the liners within one of the Solar Evaporation Ponds. It was agreed that this was an option that could be considered.

Alan MacGregor discussed the potential to phase the construction of the engineered barrier such that it could be assessed after the post-closure period whether a 1000 year life span was required. Phil Nixon presented a flow diagram that could be followed to implement this approach. It was agreed that this option could also be considered.

#### **4.) Performance Objectives**

Phil Nixon provided the team with a trip report from the meetings in Hanford and discussed the applicability of the Hanford design criteria to the OU4 site. It was agreed that the engineered cover should:

- 1.) should be designed to function in a semi-arid region
- 2.) should be designed to minimize infiltration
- 3.) should function with minimal maintenance
- 4.) should minimize animal intrusion
- 5.) should minimize erosion
- 6.) should comply with RCRA/CERCLA requirements

It was agreed that the engineered cover design should not address the prevention of human intruders. The prevention of human intruders should be addressed in the future by a sitewide Record of Decision.

Frazer Lockhart specified that the design assumptions made at Hanford should be assessed for their applicability at Rocky Flats. The environmental conditions and levels of contaminants are different between the two sites. For example, the radiological soil concentrations at Hanford are 4-5 orders of magnitude higher than the concentrations in Rocky Flats soils.

#### **5.) Phase II RFI/RI Status**

Richard Henry requested if an additional 2 weeks could be added to the schedule for the Phase II RFI/RI workplan once the task was held up in procurement. Andy Ledford said that he would prefer to submit the workplan at the same time as the round table IM/IRA draft. Frazer Lockhart indicated that it might be possible since an IAG date would not be missed.

#### **6.) Phase I RFI/RI Drilling in Ponds 207C and 207B-South**

It was discussed that drilling in Pond 207B was scheduled at the end of December, and drilling in Pond 207C was scheduled at the end of March. It was agreed that both the ponds could be drilled at the end of March to save the cost of multiple mobilization and demobilization costs.

#### **7.) Building 788**

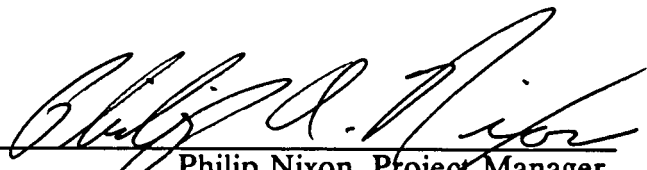
There is uncertainty whether the removal of Building 788 is in or out of the OU4 IM/IRA. DOE wishes to remove the building for re-use as soon as possible to meet waste

management needs elsewhere on site, and utilize funding available in FY94. If Building 788 is put back into the OU4 IM/IRA, then there should be no impact to the current IM/IRA schedule because there is a current contract for the building removal. The document should be ready for submittal with the IM/IRA.

## 8.) Conclusion

The following agreements were listed on the chalkboard during the meeting to guide the Alternative II design.

- 1.) Consolidate Pu/Am/U and constituents less than LDRs into the Ponds.
- 2.) TCLP for Ni/Cd to calculate LDRs.
- 3.) Provide protection of constituents exceeding LDRs
  - consolidate contaminants exceeding LDRs
  - hot spot removal/treatment/disposal
  - extend engineered cover
- 4.) Liners may remain provided that groundwater is protected
  - lateral flow presence
  - contaminant transport less than LDR/PRG
- 5.) Overall solution protective for 1000 years.

  
Philip Nixon, Project Manager

## **OPERABLE UNIT 4/SOLAR EVAPORATION PONDS**

**DECEMBER 21, 1993**

### **AGENDA**

**SCHEDULE STATUS/PROGRESS-J. A. LEDFORD 8:00-8:30**  
**ROUNDTABLE REVIEW SCHEDULE**

**POST CLOSURE MONITORING 8:30-10:30**  
**AND MAINTENANCE**

**REGULATORY FRAMEWORK-R. OGG**

**VADOSE/UNSATURATED ZONE MONITORING**  
**TECHNIQUES/PRINCIPALS-L. G. EVERETT**

**POST CLOSURE PERFORMANCE**  
**MONITORING-L. G. EVERETT/S. CULLEN**

**POST CLOSURE PERFORMANCE MONITORING**  
**INSTRUMENTATION-S. CULLEN**

**OU 4 PHASE I RFI/RI**  
**VADOSE ZONE ANALYSIS-R. HENRY 10:30-11:00**

**PHASE II RFI/RI WORK PLAN-R. OGG 11:00-11:30**

**WORK PLAN OBJECTIVES**

**WORK PLAN CONTENTS**

**INTRODUCTION (5 PGS.)**

**ENVIRONMENTAL SETTING (10 PGS.)**

**DATA EVALUATION/SUMMARY (10-15 PGS.)**

**DATA OBJECTIVES/REQUIREMENTS (5-10 PGS.)**

**FIELD SAMPLING PLAN (15-20 PGS.)**

**PHASE II RFI/RI TASKS/SCHEDULE (5-10 PGS.)**

**HUMAN HEALTH RISK ASSESSMENT WORK PLAN**  
**(STANDARD)**

**ENVIRONMENTAL EVALUATION WORK PLAN (STANDARD)\***

**QUALITY ASSURANCE PROJECT PLAN (STANDARD)  
STANDARD OPERATING PROCEDURES-IF REQUIRED  
REFERENCES  
APPENDICES**

**\* THE ENVIRONMENTAL EVALUATION FIELD SAMPLING PLAN FOR OU  
4 HAS BEEN COMPLETED IN PHASE I RFI/RI AND THE DATA  
COLLECTED HAS BEEN ARCHIVED. THEREFORE, A EEWP WILL NOT  
BE DEVELOPED FOR THE PHASE II RFI/RI WP.**

**LUNCH**

**11:30-12:30**

**CONTENTS OF THE CONCEPTUAL  
DESIGN REPORT-ES**

**12:30-2:00**

**Table 11. Contaminants of Concern for OU4 IM/IRA**

NOTE: \* = analyte/max value only measured above reported detection limit during pre-Phase I R/I sampling programs.

[illegible]

- Calculated 95% upper confidence limit on the arithmetic mean using both  $\bar{P} = \text{Plan} \mid R/P/N \mid$  and  $\bar{P} = \text{Plan} \mid R/P/N \mid$  data except as discussed in text; note that when the data could not be fit to a normal or lognormal distribution, the 95% upper confidence limit ON the reported maximum value was used as the 95% UCL value.

- a. Calculated value equal to the midpoint means plus two times the standard deviation on background data (see next for details).
- b. Calculated a half – based preliminary trend/ratio goal for the future predicted exposure scenario (comparison criteria).
- c. Target concentration used to define analysis is combination of concern.
- d. Calculated a half – based preliminary trend/ratio goal for the comparison scenario (comparison criteria).
- e. Calculated risk – based preliminary trend/ratio goal for the comparison worker exposure scenario (comparison criteria).

COCs if OVA conc > Calc PRG, or if chem. detected & no toxicity data is available (seeJGLB)20-Dec-93

Table x.x (continued, page 2). Contaminants of Concern for OU4 IM/IRA  
 Note: Remaining analytes have been classified as COCs in the absence of toxicity data to be used to calculate preliminary remediation goals; all data based on OU4 data from 1987 – September 30, 1993.

NOTE: \* = analyte/max. value only measured above reported detection limit during pre-Phase I RFI/RI sampling programs.

Contaminant of Concern	Surficial Soils (0 – 3")				Vadose Soil (3" – 12")			
	Freq of Detects (8)	Range of OU4 Detect Limits (9)	Range of OU4 Detected Conc. (10)	Selection Criteria (11)	Freq of Detects (8)	Range of OU4 Detect Limits (9)	Range of OU4 Detected Conc. (10)	Selection (11)
<u>Radionuclides</u>								
Tritium (pCi/ml)	14/39	0 – 4.1	0.04 – 1.3	No toxicity data	133/170	0 – 0.59	0.11 – 62	No toxicity data
<u>Organics</u>								
1,1,1-trichloroethane (ug/kg)		Not a COC for Surficial Soil			20/171	0 – 5	6 – 29	No toxicity data
2-hexanone (ug/kg)		Not a COC for Surficial Soil			21/161	0 – 10	11 – 58	No toxicity data
Phenanthrene (ug/kg)	11/171	370 – 600	470 – 1,200	No toxicity data	8/35	0	330*	No toxicity data – Data source pre-Phase I RFI/RI(*)
1,2-dichloropropane (ug/kg)		Not a COC for Surficial Soil			20/171	0 – 5	6 – 29	No toxicity data
1,4-dichlorobenzene (ug/kg)	1/4	330	400	No toxicity data	8/35	0	330*	No toxicity data – Data source pre-Phase I RFI/RI(*)
Chloroethane (ug/kg)		Not a COC for Surficial Soil			21/167	0 – 10	11 – 58	No toxicity data

8. Frequency of detection indicates the frequency with which the analyte was measured above the reported detection limit.

9. Range of reported chemical-specific detection limits in data for OU4.

10. Range of measured concentrations exceeding the reported, corresponding detection limit.

11. Details on selection criteria (i.e., lack of toxicity data).

**CONCEPTUAL DESIGN DOCUMENTATION OUTLINE  
OU4 IM/IRA**

**PART IV RECOMMENDED IM/IRA ALTERNATIVE**

**IV.1 Description and Rationale for Selection**

- IV.1.1 Selection of a Closure/Remediation alternative
- IV.1.2 Description of the Selected Alternative

**IV.2 Design Basis**

- IV.2.1 Functional Objectives
- IV.2.2 Design Requirements
- IV.2.3 Applicable Codes and Standards
- IV.2.4 Constraints and Limitations
- IV.2.5 Assumptions

**IV.3 Conceptual Design**

- IV.3.1 Engineered Cover and Site Layout
  - detailed design description and justification
  - HELP model (description, inputs, outputs)
  - drawings
- IV.3.2 Utilities
  - detailed design description and justification
  - drawings

**IV.4 Outline Specifications**

- IV.4.1 Engineered Cover and Site Layout
- IV.4.2 Utilities

**IV.5 Implementation Plan and Proposed Schedule**

- IV.5.1 Engineering Implementation Studies
  - geotechnical testing workplan
  - utility location verification workplan
- IV.5.2 Schedule

**IV.6 Cost Estimate**

- IV.6.1 Cost and Funding Plan
- IV.6.2 Procurement Plan

**IV.7 Construction Quality Assurance Plan**

**IV.8 Waste Management Plan**

**IV.9 Power Modification Request and Power Usage Survey**

**IV.10 IM/IRA Risk Analysis and Potential Impact Determination**

- IV.10.1 Human Health Risks
- IV.10.2 Ecological Risks
- IV.10.3 Impact to Air Quality
  - air modeling (description, input, output)
- IV.10.4 Impact to Water Quality
  - groundwater (V-Leach, description, input, output)
  - surface water

IV.10.5 Impact from the Commitment of Irreversible and Irretrievable Resources

IV.10.6 Transportation Impacts

IV.10.7 Short Term vs. Long Term Impacts

IV.10.8 Impact to Cultural/Historical and Archeological Resources

IV.10.9 Cumulative Impacts

IV.11 Comparative Analysis Between the No-action and Preferred Alternative

IV.12 Consistency with Final Remedies

IV.13 Compliance with ARARs and Permit Information Summary

IV.14 Health and Safety Considerations